

Atty. Docket No. 60,152-990

IN THE CLAIMS:

1. (Previously Amended) A double-sided clinch-type female fastener for attachment to a panel formed of a deformable metal, comprising:

a body portion having opposed ends and a bore extending through said body portion through said opposed ends;

a radial flange portion integral with said body portion midway between said opposed ends having generally parallel planar annular surfaces on opposed sides of said radial flange portion surrounding said body portion and an inwardly tapered annular outer peripheral portion; and

wherein said clinch-type female fastener is symmetrical along and about a longitudinal axis of said bore.

2. (Cancelled)

3. (Previously Amended) The clinch-type female fastener as defined in Claim 1, wherein said body portion includes outer clinching surfaces circumscribing said opposed ends tapered radially outwardly from said radial flange portion to said opposed ends.

4. (Previously Amended) The clinch-type female fastener as defined in Claim 1, wherein said outer peripheral portion of said radial flange portion is generally circular.

5. (Previously Amended) The clinch-type female fastener as defined in Claim 4, wherein said generally parallel planar annular surfaces on opposed sides of said radial flange portion each include a plurality of spaced radial grooves.

6. (Previously Amended) The clinch-type female fastener as defined in Claim 5, wherein said radial grooves each include radial side walls and a bottom wall spaced below a plane of said planar annular surfaces.

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7. (Previously Amended) The clinch-type female fastener as defined in Claim 5, wherein said radial grooves include an end wall each spaced from said body portion.

8. (Previously Amended) The clinch-type female fastener as defined in Claim 7, wherein said radial grooves extend to said annular outer peripheral portion of said radial flange portion.

9. (Original) A self-attaching female fastener element, comprising:
a generally cylindrical body portion having opposed end portions, a bore extending through said body portion through said end portions and said end portions each including a radially outwardly inclined generally frustoconical surface; and

a radial flange portion integral with said body portion midway between said opposed end portions having generally parallel annular surfaces on opposed sides of said radial flange portion surrounding said body portion.

10. (Original) The self-attaching female fastener element as defined in Claim 9, wherein said self-attaching female fastener element is symmetrical about a plane perpendicular to a longitudinal axis of said bore.

11. (Original) The self-attaching female fastener element as defined in Claim 9, wherein said radial flange portion includes an inwardly tapered annular outer peripheral edge portion.

12. (Original) The self-attaching female fastener element as defined in Claim 9, wherein said generally parallel annular surfaces on opposed sides of said radial flange portion each include a plurality of radial grooves.

13. (Original) The self-attaching female fastener element as defined in Claim 12, wherein said radial grooves each include radial side walls and a bottom wall spaced below a plane of said generally planar annular surfaces.

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14. (Original) The self-attaching female fastener element as defined in Claim 12, wherein said radial grooves are each spaced from said body portion.

15. (Original) The self-attaching female fastener element as defined in Claim 9, wherein said radial flange portion includes a circular outer peripheral edge.

16. (Previously Amended) A method of attaching a symmetrical clinch-type female fastener element to a panel, said female fastener element including a body portion having opposed end portions and a bore extending through said body portion through said opposed end portions, and a radial flange portion integral with said body portion midway between said opposed end portions having an annular outer peripheral portion, and wherein said clinch-type female fastener element is symmetrical along and about a longitudinal axis of said bore, said method comprising the following steps:

receiving either one of said end portions of said body portion of said symmetrical clinch-type female fastener element through an opening in a panel;

deforming said annular outer peripheral portion of said radial flange portion towards said one of said end portions of said body portion thereby forming an annular groove surrounding said body portion; and

deforming an annular panel portion surrounding said opening in said panel into said annular groove.

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17. (Previously Amended) The method of attaching a symmetrical clinch-type female fastener element to a panel as defined in Claim 16, wherein said annular outer peripheral portion of said radial flange portion includes inwardly radially tapered surfaces and said method including deforming said annular outer peripheral portion of said flange portion toward said one of said end portions of said body portion until said inwardly radially tapered surface adjacent said one of said end portions of said body portion extends generally perpendicular to a longitudinal axis of said bore, thereby forming an annular bearing surface supporting said panel.

18. (Previously Amended) The method of attaching a symmetrical clinch-type female fastener element to a panel as defined in Claim 16, wherein each of said end portions of said body portion includes a radially outwardly inclined surface, said method including deforming said panel portion radially inwardly beneath said radially outwardly inclined surface.

19. (Previously Amended) The method of attaching a symmetrical clinch-type female fastener element to a panel as defined in Claim 16, wherein said radial flange portion includes generally parallel annular surfaces having radial grooves surrounding said end portions, said method including deforming said panel into said radial grooves.

20. (Previously Amended) The method of attaching a symmetrical clinch-type female fastener element to a panel as defined in Claim 16, wherein said method includes driving said one of said end portions of said body portion against said panel piercing said opening in said panel.

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21. (Currently Amended) A clinch-type female fastener, comprising:

a body portion having opposed ends, a bore extending through said body portion through said opposed ends, a radial flange portion integral with said body portion midway between said opposed ends having annular surfaces on opposed sides of said radial flange portion surrounding said body portion and an inwardly tapered annular outer peripheral portion, and clinching surfaces circumscribing said opposed ends and clinching surfaces tapered radially outwardly from said radial flange portion to said opposed ends.

22. (Currently Amended) A clinch-type female fastener, comprising:

a body portion having opposed ends and a bore extending through said body portion through said opposed ends; and

a radial flange portion integral with said body portion ~~generally~~ midway between said opposed ends including generally parallel planar annular surfaces on opposed sides of said radial flange portion surrounding said body portion each having a plurality of spaced radial grooves and an inwardly tapered annular outer peripheral portion.

23. (Previously Presented) The clinch-type female fastener as defined in Claim 22, wherein said radial grooves each include radial side walls and a bottom wall spaced below a plane of said planar annular surfaces.

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24. (Currently Amended) A method of attaching a self-attaching female fastener to a panel, said female fastener including a body portion having opposed end portions, a bore extending through said body portion through said opposed end portions and through a radially outwardly inclined surface, and a radial flange portion integral with said body portion ~~generally~~ midway between said opposed end portions having an annular peripheral portion, said method comprising the following steps:

receiving either one of said end portions of said body portion of said self-attaching female fastener through an opening in a panel;

deforming said annular outer peripheral portion of said radial flange portion toward said one of said end portions of said body portion forming an annular groove surrounding said body portion; and

deforming an annular panel portion surrounding said opening radially inwardly beneath said radially outwardly inclined surface of said body portion.

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25. (Currently Amended) A method of attaching a self-attaching female fastener to a panel, said female fastener including a body portion having opposed end portions and a bore extending through said body portion through said opposed end portions, and a radial flange portion integral with said body portion ~~generally~~ midway between said opposed end portions including generally parallel annular surfaces circumscribing said body portion each having circumferentially spaced generally radial grooves and an outer peripheral portion, said method comprising the following steps:

receiving said either one of said end portions of said body portion of self-attaching female fastener through an opening in a panel;

deforming said annular outer peripheral portion of said radial flange portion toward said one of said end portions of said body portion, thereby forming an annular groove surrounding said body portion; and

deforming an annular panel portion surrounding said opening in said panel into said annular groove and into said circumferentially spaced generally radial grooves of said radial flange portion adjacent said one of said end portions of said body portion.